

NOTES ON TRACHYMENE HUMILIS (J. D. Hook.) Benth. (UMBELLIFERAE)

by

P. S. SHORT*

ABSTRACT

Short, P. S. Notes on *Trachymene humilis* (J. D. Hook.) Benth. (Umbelliferae). *Muelleria* 6(3): 159-167. (1986). — Evidence is presented to show that *Trachymene humilis* (J. D. Hook.) Benth. consists of two taxa treated here as two subspecies, *T. humilis* ssp. *humilis* and *T. humilis* ssp. *breviscapa* (Domin) P. Short. The type specimens of the names *Didiscus humilis* J. D. Hook., *D. humilis* f. *breviscapus* Domin and *D. humilis* f. *longiscapus* Domin are discussed, lectotypes designated and general comments on Ronald Gunn's collections of *T. humilis* made.

INTRODUCTION

Trachymene humilis (J. D. Hook.) Benth., a perennial herb with the leaves in a basal rosette, is endemic in south-eastern Australia.

This species, first described in 1840, was originally referred to as *Didiscus humilis* J. D. Hook. but was transferred by Bentham (1867) to *Trachymene* Rudge. However, Domin (1908) in his monograph of *Didiscus* again referred it to *Didiscus*. The plant under discussion has therefore been placed under different generic names dependent on whether authors have followed Bentham or Domin. This confusion stems from De Candolle's (1829) misapplication of *Trachymene* Rudge for a genus now known as *Platysace* Bunge and the establishment of the name *Didiscus* for the genus correctly named *Trachymene* Rudge. De Candolle was widely followed in the use of the two names, e.g. by Domin (1908) (Bentham, 1867, being a notable exception), until Norman (1931) clarified the correct application of the name *Trachymene* Rudge. His interpretation has since been followed by many authors (e.g. Burt 1941, Eichler 1965, Willis 1973). Thus the accepted name for the species under discussion is *Trachymene humilis* (J. D. Hook.) Benth.

Domin (1908) recognised two forms within *D. humilis*, viz. f. *breviscapus* Domin and f. *longiscapus* Domin. They were distinguished by the relative lengths of the fruiting peduncles (scapes) and the leaves. As did Hooker (1856) and Bentham (1867), Domin noted the presence or absence of an indumentum on parts of the plant but he did not include this character when describing the infraspecific taxa.

Following routine identification work at MEL, and unaware of Domin's work, I noted that specimens of two apparently distinct taxa were being incorporated under *T. humilis*. The results of further investigations are presented below.

Collections from AD, BM, CANB, CBG, HO, MEL and NSW (abbreviations after Holmgren et al. 1981) were examined. It was expected that specimens of *T. humilis* examined by Domin would be housed in PRC and/or PR but enquiry revealed that this apparently is not the case. This may reflect the fact that Domin wrote his monograph of *Didiscus* during a stay at Kew Herbarium (Dr J. Sojak, in litt., 1984).

RESULTS AND DISCUSSIONS

Specimens of *T. humilis* can be sorted into two groups by either the presence or absence of hairs on the leaves and/or peduncles or by the relative lengths of the longest leaves and fruiting peduncles (peduncles were considered to be fruiting if only a few of the outermost flowers in the umbel had swollen mericarps). The scatter diagram in figure 1 displays these features and shows that differences in the leaf length/fruiting peduncle length ratio are strongly correlated with the

* National Herbarium of Victoria, Birdwood Avenue, South Yarra, Victoria, Australia 3141.

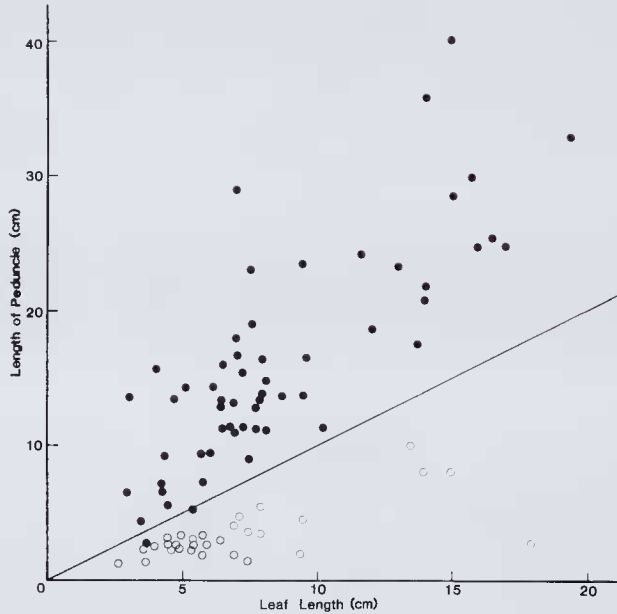


Fig. 1. Scatter diagram showing the correlation of leaf length and peduncle length in *T. humilis*. ● = plants hairy. ○ = plants glabrous.

presence or absence of hairs. This correlation allows the recognition of two distinct taxa.

Other morphological differences between the groups have not been found. Some of the variation in leaf-laminae is illustrated in figure 2. I have formally given the taxa under discussion the rank of subspecies (see below). The reasons for this are now outlined.

On the Australian mainland it is apparent from herbarium collections and field observations (D. E. Albrecht, B. J. Conn, S. J. Forbes, A. M. Opie, N. G. Walsh, pers. comms) that populations consist of only a single taxon. The ssp. *humilis* rarely occurs above 1500 m altitude whereas ssp. *breviscapa* favours sub-alpine and alpine areas at higher altitudes. Within both of these broad regions the taxa, particularly ssp. *humilis*, occupy a number of distinct habitats (see below under each subspecies). Observations suggest that the characters are not unduly influenced by environment but are genetically fixed. However transplant experiments and observations on plants of both taxa grown under controlled conditions are desirable to clarify the extent to which environmental parameters may influence morphological features.

In Tasmania differences in distribution and habitat preferences are not clear. The ssp. *humilis* is the most widespread and again appears to occur in a wider range of habitats than ssp. *breviscapa*. Both are, however, sympatric in the vicinity of the Middlesex Plains and Cradle Mountain and two collections (*Curtis s.n.*, HO 4436; *Lester-Garland s.n.*, K) from this region display features which are intermediate between the subspecies. Both collections contain plants which have a sparse indumentum and fruiting peduncles about the length of or slightly shorter than the leaves. Many of the fruit are well-developed which suggests that they were viable when collected.

The presence of collections with intermediate features, the paucity of morphological characters which distinguish them and doubt as to the extent environment may influence these characters are, I believe, good reasons for not applying the rank of species to the two taxa. Definitions of infraspecific categories, i.e. sub-

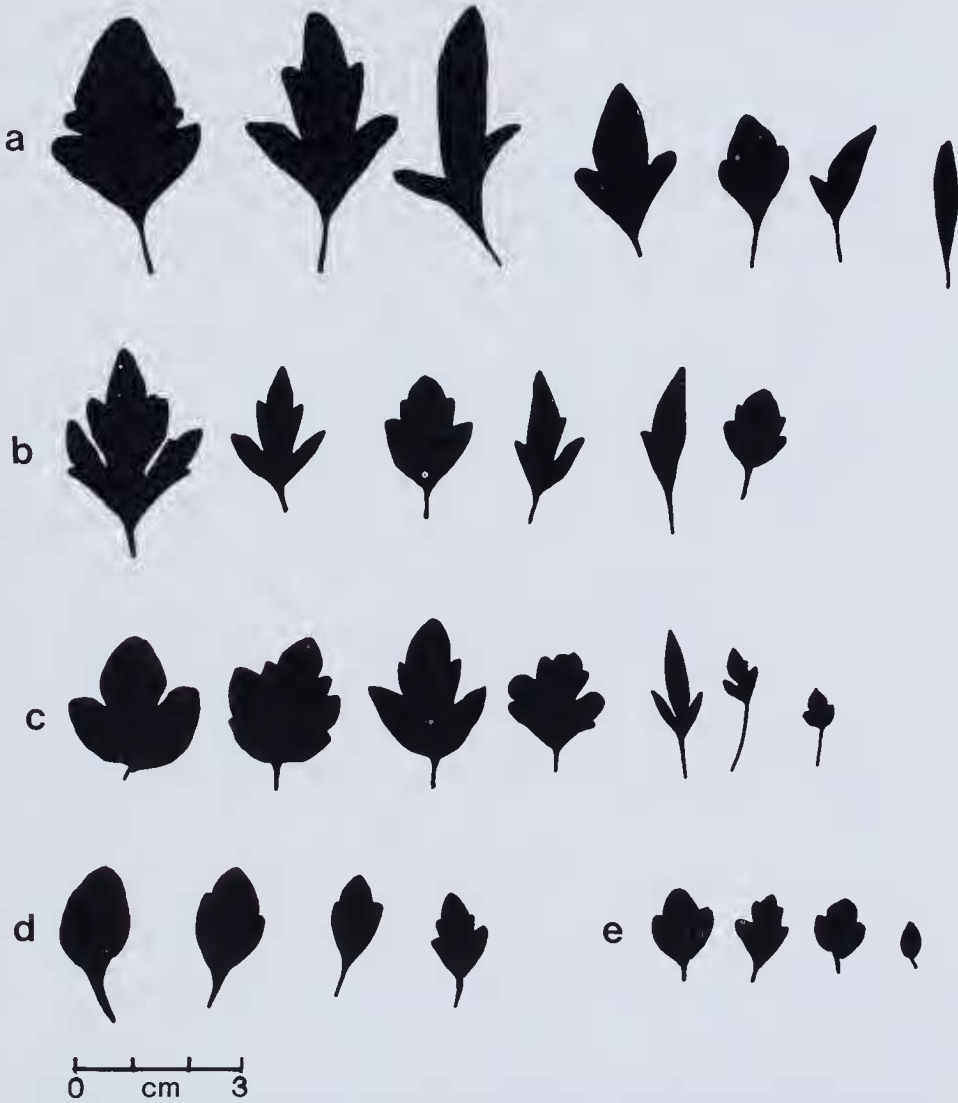


Fig. 2. Leaf-laminae variation in *T. humilis*. For each collection, the leaves figured are all from a single plant. *T. humilis* ssp. *humilis*: a — Walsh 874; b — Muir 3310. *T. humilis* ssp. *breviscapa*: c — Muir 664; d — Willis s.n. (MEL 503285); e — Eichler 18930.

species, varietas and forma, have differed widely over the years (e.g. see Davis & Heywood 1963) but I accept the definition of a subspecies "as a considerable segment of a species with a distinct area and more or less distinct morphology, often showing some intergradation" (Davis & Heywood l.c., p.99). This definition reflects well the attributes of the taxa under discussion and therefore the rank of subspecies has been applied.

TAXONOMY

Trachymene humilis (J. D. Hook.) Benth., Fl. austral. 3:351 (1863); Rodway, Tasman. fl. 63 (1903); W. M. Curtis, Students Fl. Tasman. 248 (1963); Cochrane,

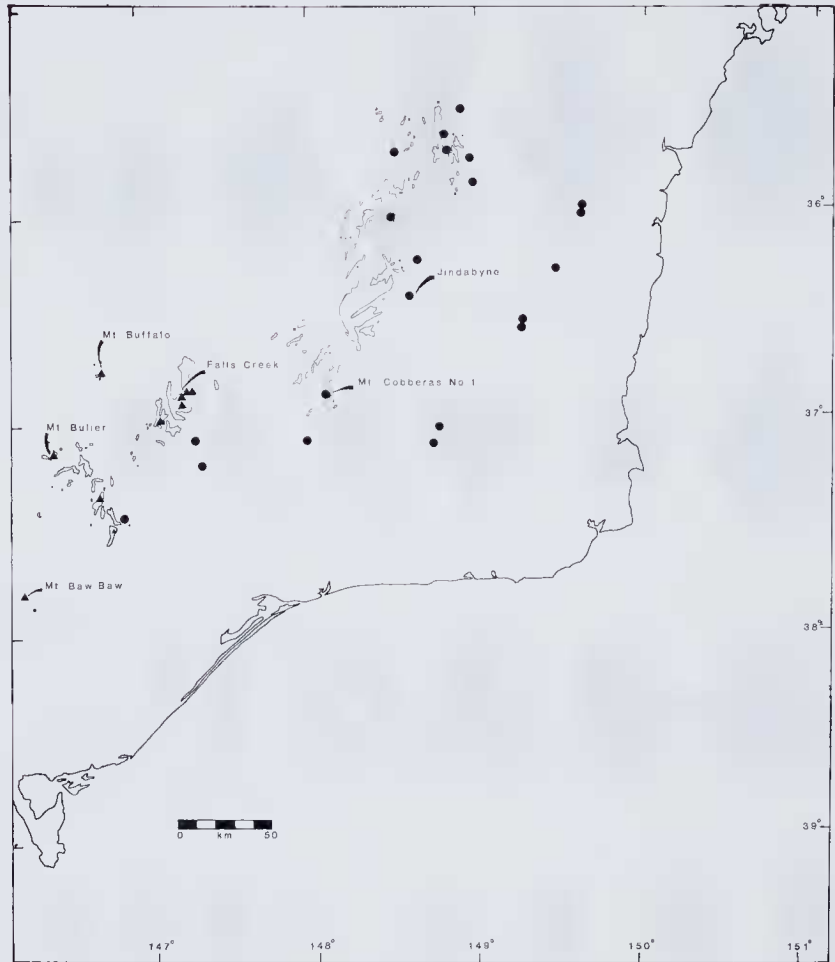


Fig. 3. Distribution of *T. humilis* ssp. *humilis* (●) and ssp. *breviscapa* (▲) in mainland Australia. 1500 metre contour shown.

Fuhrer, Rotherham and J. H. Willis, Fls. and Pl. Victoria 163, t.514 (1968); N. Burb. and M. Gray, Fl. Austral. Cap. Terr. 282, t.273 (1970); J.H. Willis, Handb. Pl. Victoria 2:484 (1973); Launceston Field Naturalists Club, Guide Fls and Pl. Tasman. 36, t.53 (1981). — *Didiscus humilis* J. D. Hook, Icon. Pl. 4, t.304 (1840); J. D. Hook., Fl. Tasman. 1:154 (1856); F. Muell., Pap. and Proc. Roy. Soc. Van Diemen's Land 3:237 (1860); Domin, Sitzungsber. Königl. Böhm. Ges. Wiss. Prag, Math.-Naturwiss. Cl. 10:59 (1908); Ewart, Fl. Victoria 897 (1931). — [*Didiscus minor* J. D. Hook. ex Domin, o.c. 60, nom. in sched.] TYPE: "Moist open plains on the Hampshire hills, Van Dieman's Land. R. Gunn, Esq. (n.245.)". HOLOTYPE: Gunn 245/1837, Van D. Land, Hampshire Hills, — .ii.1837 (K).

Hemicryptophyte, with all leaves in basal rosettes, the root system often extensive and the plants forming a mat-like ground cover. *Leaves* long-petiolate, glabrous or with scattered, septate hairs; petiole c. 1-12 (13.7) cm long, with a variably sheathing base; lamina narrowly to widely elliptic, ovate or obovate in outline, 0.5-4(4.2) cm long, 0.4-3(3.2) cm wide, entire or variously lobed, symmetrical or asymmetrical (see Fig.2). *Umbels* 1-8 per rosette; *peduncles* 1.5-40 cm

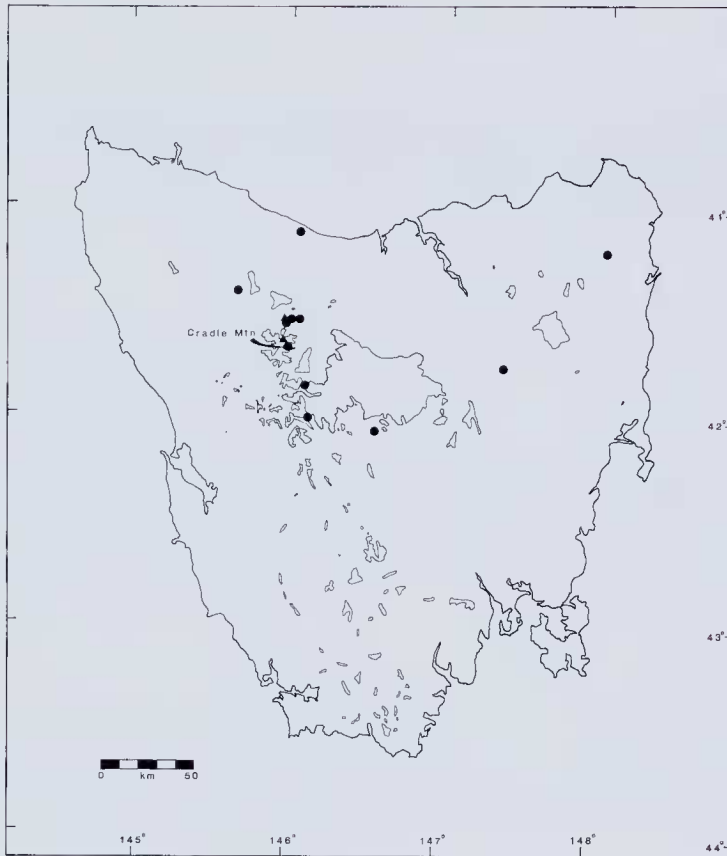


Fig. 4. Distribution of *T. humilis* ssp. *humilis* (●) and ssp. *breviscapa* (▲) in Tasmania. 1000 metre contour shown.

long, c. 0.5-3 mm diam., striate, glabrous or with scattered hairs; *involucral bracts* c. 14-20, \pm linear or very narrowly lanceolate, 5.6-14 mm long, 0.5-1 mm wide, (about the length of or longer than the outermost pedicels), glabrous or with scattered hairs; *pedicels* c. 25-50 per umbel, c. 0.5-8 mm long, the inner ones shorter than the outer ones. *Calyx* absent; *petals* 5, ovate, \pm elliptic or obovate, 0.9-1.6 mm long, 0.7-1.3 mm wide, white to pinkish-white; *stamens* 1.5-2.3 mm long, anthers 0.45-0.7 mm long; styles 1.3-1.6 mm long. *Mericarps* flattened laterally, (2.8)3-4 mm long, 2.2-3.2 mm wide, \pm smooth to conspicuously wrinkled, glabrous, those of the same fruit equally developed or sometimes only one developing.

DISTRIBUTION (Figs 3 & 4):

In mainland Australia the subspecies of *T. humilis* have fairly discrete distributions. Subspecies *humilis* rarely occurs above 1500 m altitude whereas ssp. *breviscapa* is apparently restricted to sub-alpine and alpine areas at altitudes greater than 1500 m.

In Tasmania ssp. *humilis* is the most widespread taxon whereas ssp. *breviscapa* occurs only in the vicinity of the Middlesex Plains and Cradle Mountain. Thus the latter taxon again favours sub-alpine to alpine conditions, conditions which occur in Tasmania at a lower altitude than on the mainland. However ssp. *humilis* also

grows in the same region and evidently in the same or similar habitats as ssp. *breviscapa*.

TYPIFICATION:

The numbers which accompany Gunn collections are intended as species numbers, not collection numbers (Burns & Skemp 1961; Haegi 1982). Thus at K there are several separate sheets containing a number of different collections by Gunn but with the same number, "245".

One of the K sheets contains five individual rosettes, each with one or more inflorescences, and apparently representing a single collection. This sheet of specimens is regarded as the holotype of the name *D. humilis* J. D. Hook. As well as the plant specimens it contains three separate labels. One records the collection information cited above for the holotype, another has drawings of the fruit and flowers of the species. These drawings are the same as those published by J. D. Hooker in Hooker's *Icones Plantarum* and are labelled "*Didiscus minor* n. sp.". The third label bears a note by Gunn. It says "1837/245. *Didiscus?* *humilis*. Most abundant at the Hampshire Hills where I collected the specimens now sent in February. It does not bear its fruit erect — but after flowering — the flower stalk appears to lengthen and grows out horizontally from the root with the fruit turned slightly upwards thus [a small illustration is then supplied]. I send the specimen from Middlesex Plains which bears the fruit [word illegible] upon a shorter stalk but I supposed the differences of climate might have caused it, & therefore did not collect more".

Another sheet housed at K undoubtedly contains the specimen referred to by Gunn in the label cited above. It is labelled "245?/1837. Middlesex Pl.", is a completely glabrous specimen and the fruiting peduncles are shorter than the longest leaves. I have referred it to *T. humilis* ssp. *breviscapa* and also regard it as the holotype of its basionym *Didiscus humilis* f. *breviscapus* Domin (see below). The collection is accompanied by others made by Gunn, by Backhouse and probably by Milligan. All are referable to ssp. *humilis*. One of the specimens, the largest one, resembles those of the type of *D. humilis* but I suspect it is the specimen to which the Backhouse label refers and it is therefore apparently not part of the type collection.

The apparent use of Gunn's species numbers on Milligan collections is of interest. One specimen on the second K sheet mentioned above is labelled as "V.D. Land, Gunn 245, Hampshire Hills, 15/12/41. In NSW there is a further sheet (NSW 152944) labelled as "245, Hampshire, H. Hills, 15.12.41, J.M. 54". It is part of "Gunn's Herbarium of Tasmanian Plants". Furthermore both BM and MEL each contain a single Milligan specimen with the label "54/106, Hamp. Hills, Tasmania". The MEL sheet (MEL 643966) also contains a label with the number "1016". Other sheets labelled as "Milligan 54" occur in K, BM and HO (HO 4433). Thus this appears to be a further case in which specimens gathered by another collector have appeared in Gunn's herbarium, with Gunn's species number. Haegi (1982) has reported similar observations. Such knowledge may well be important in determining the identity of type material collected by Gunn and fellow collectors such as Milligan, Archer, Lawrence and Stuart. However in the case of *T. humilis* it is clear from both the dates of collection and the accompanying notes that the type collection of this species was made by Gunn.

One of the Gunn collections of *T. humilis* is labelled as "245/1842, Marlborough, 4/1/41". Single sheets containing this collection exist in both BM and K. The discrepancy between the actual collection date and the date accompanying the species number is apparently quite common in Gunn collections. Thus, in a letter dated 21 April 1838 and sent from Circular Head to Kew, Gunn stated "You will perceive that my Collection for 1837, (as I have dated it for the sake of reference, although many were collected in 1836 and some in 1838) far exceeds in any extent any of its predecessors" (Burns & Skemp 1961, p.75). This statement, plus the wording in the accompanying note (cited above), shows that the type collection of

D. humilis may have been collected in 1836, 1837 or 1838. However from a letter published by Burns & Skemp (l.c., p.63) it is clear that Gunn collected from the Hampshire Hills in 1837.

A further sheet at K contains two separate collections of *T. humilis* ssp. *humilis* labelled as "*Didiscus minor*, Hook. fil./Van Dieman's Land. Gunn/Lindley 1834" and "No. 245/*Didiscus minor*, Hook. fil./Van Dieman's Land./R. Gunn/Sir W. J. Hooker, 1838", respectively. The manuscript name, *Didiscus minor*, on these labels and on the holotype sheet, was subsequently referred to by Domin (1908).

KEY TO SUBSPECIES OF *T. HUMILIS*

Plants sparsely pilose, with hairs on at least the involucre bracts, peduncles, or leaves; fruiting peduncles longer than the leaves ssp. *humilis*
Plants glabrous; fruiting peduncles shorter than the leaves ssp. *breviscapa*

T. humilis ssp. *humilis*

Didiscus humilis f. *longiscapus* Domin, Sitzungsber. Konigl. Bohm. Ges. Wiss. Prag. Math.-Naturwiss. Cl. 10:59 (1908). TYPE: "Victoria: Alpine and subalpine pastures in the Australian Alps, leg. F. MUELLER, c. 1600 m (f. *longiscapus*)."
LECTOTYPE (here chosen): *Mueller s.n.*, Limestone river, 5000'., s.dat. (K). ISOLECTOTYPE: BM. POSSIBLE ISOLECTOTYPE: *Mueller s.n.*, In pratis alpinus prope . . . Limestone river & Native Dog creek prope montis Cobra, -i.1854 (MEL 643972).

HABITAT:

The following collector's notes indicate that this subspecies occupies a wide range of habitats. Notes include "in grassland beside small creek, in moist area disturbed by grazing", "in dry sclerophyll woodland, on damp sandy soil", "in *Eucalyptus dalrympleana* — *E. viminalis* woodland with *Coprosma quadrifida*, *C. hirtella*, *Bursaria spinosa*, *Acacia melanoxylon* . . . alt. c.240 m", "Poa grassland", "in clearing in *E. pauciflora* forest", "in subalpine herbfield" and "in open scrub (?regeneration from clearing) with *Nothofagus cunninghamii*, *Tasmannia lanceolata*, *Lycopodium varium*".

TYPIFICATION OF *DIDISCUS HUMILIS* F. *LONGISCAPUS* DOMIN:

The only Mueller collection of *T. humilis* at K is that cited above. The information provided with it does not match that cited by Domin in his publication but I have not seen any Mueller collections of *T. humilis* labelled according to Domin's citation. The locality data cited by Domin are in fact exactly those given by Bentham (1867). It seems likely that the statement used by Bentham is a general one used to encompass the distribution of all of Mueller's Victorian collections of *T. humilis* and that the same statement was subsequently used by Domin. The belief that Domin examined the "Limestone river" collection at K is also supported by his reference to the altitude ("c. 1600 m") as it is surely a conversion to the metric system. Thus I believe that the K specimen should be regarded as a type, possibly even the holotype. However I have chosen it as the lectotype specimen as a duplicate exists at BM and I have no reason to believe that it was not seen by Domin. Unfortunately I have not seen a specimen of *T. humilis* in any herbarium annotated in Domin's hand.

The MEL collection regarded as a possible isoelectotype has more detailed locality data than the lectotype sheet but Limestone Creek is again mentioned. Discrepancies between labels on specimens which are otherwise considered to be duplicates are not uncommon with Mueller collections. In this case I suggest that Mueller merely abbreviated the locality data on the material sent to K.

SELECTED SPECIMENS EXAMINED (Total c. 65):

New South Wales — Coveny 6233, Hind, Hancock & Parris, Breakfast Peak on the Pike's Saddle — Dampier trig road, 31.iii.1975 (MEL, NSW); Muir 3310, near the Delegate River on Bombala — Bonang road, 16.xi.1964 (MEL); Thompson 4008, Thredbo Diggings, 4.ii.1980 (NSW).

Australian Capital Territory — Burbidge 6348, Blackfellow's Gap, 24.ii.1959 (AD, CANB, MEL); Darbyshire 129, 2 miles N. of A.C.T. border, on Boboyan road by Naas Creek, 25.i.1961 (CANB, MEL, NSW).

Victoria — Mueller s.n., Moroka Valley, 4000', -iii.1861 (MEL 643971, NSW 152960); Walsh 874, The Playgrounds, 2.5 km SW. of Mt Cobberas No. 1., 23.ii.1982 (MEL, NSW).

Tasmania — Backhouse s.n., V.D. Land, s.dat. (K); Canning 2751, Iris River crossing on Wilmot — Cradle Mtn road, 15.ii.1969 (AD, CBG, NSW); Curtis s.n., Middlesex Plains, 7.iii.1949 (HO 4436, p.p.); Gunn 245/1842, Marlborough, 4.i.1841 (BM, K); Milligan 54 or 54/106, Hampshire Hills, 15.xii.1841 (BM, K, HO 4433, MEL 643966, NSW 152944, assumed to be from the one gathering).

T. humilis ssp. **breviscapa** (Domin) P.S. Short, comb. et stat. nov.

Didiscus humilis f. *breviscapus* Domin, Sitzungsber. Konigl. Bohm. Ges. Wiss. Prag, Math.-Naturwiss. Cl. 10:59 (1908), basionym. TYPE: "Tasmania: Copiose in stationibus subalpinus, e.g. ad Marlborough, prope Lake St. Clair, Hampshire Hills, Middlesex Plains (f. *breviscapus*) etc., leg. GUNN, LAWRENCE, BACKHOUSE etc. Van Dieman's Land: leg. R. Gunn sub no. 245". HOLOTYPE: Gunn 245?, Middlesex Plains, 1837 (K).

HABITAT:

The ssp. *breviscapa* is apparently restricted to subalpine and alpine habitats. Collector's notes include "alpine low woodland (3.5 m) association, dominant species: *Eucalyptus pauciflora*, *Bossiaea foliosa*", "Open heathland, associated spp. *Acetosella vulgaris*, *Poa hothamensis*, *Grevillea australis*, *Hovea longifolia*", "*Poa hiemata* — *Hovea tussock grassland*", "In open sedgeland/ shrubland . . . with *Carex appressa*, *Carex jackiana*, *Poa costiniana*", "Open grassland. Ass. spp. include *Leptorhynchus squamatus*, *Poa hiemata*, *Senecio lautus*, *Cotula filicula*, *Celmisia asteliifolia*, *Oreomyrrhis eriopoda*" and "growing with *Caltha*, *Richea* etc. in a small, open sphagnum bog".

TYPIFICATION:

The manner in which Domin referred to type specimens is perhaps ambiguous in his published work on *T. humilis*. Thus in the 'type citation' above for f. *breviscapus* it could possibly be argued that all Tasmanian collections should be regarded as syntypes. However I believe that Gunn's Middlesex Plains collection was meant to be regarded as the type specimen (see under the species description above). The name f. *breviscapus* is clearly bracketed after the Middlesex Plains location, the same method used for indicating the type collection(s) of f. *longiscapus*. Furthermore all other Tasmanian collections clearly cited by Domin are of ssp. *humilis*, with only one collection, a Gunn collection from the Hampshire Hills and housed at K, possibly being considered by Domin as belonging to f. *breviscapus*. This specimen is sparsely pilose but the peduncles, which do not bear mature fruit, are about the length of the leaves.

SELECTED SPECIMENS EXAMINED (Total c. 45):

Victoria — Albrecht 225 & Conn, 2.7 km SE. of General Store at Hotham Heights, 23.ii.1984 (MEL); Eichler 18930, near Baw Baw Ski village on way to summit, 22.i.1967 (AD); Forbes 802, Adair & Gray, 4.2 km N. of Mt Cope, 13.i.1982 (MEL); Howitt ?1125, near Mt Wellington, -xii.1887 (MEL 643985); Mueller s.n., snowy plains at the head of the Yarra, the [?Tyers], the Baw Baw & Albert Ranges, -xii.1860 (MEL 643989).

Tasmania — Curtis s.n., Middlesex Plains, 7.iii.1949 (HO 25148, HO 51598); Eichler 16456, bog at Iris River near road from Wilmot to Waldheim, 6.i.1960 (AD).

ACKNOWLEDGEMENTS

I sincerely thank Dr Hj. Eichler and Miss H. I. Aston for their comments on the original manuscript.

REFERENCES

- Bentham, G. (1867). 'Flora Australiensis' vol.3. (Reeve: London). *Trachymene humilis*, p.351.
- Burns, T. E. & Skemp, J. R. (1961). Van Dieman's Land correspondents. *Rec. Queen Vict. Mus.* 14:1-142.
- Burt, B. L. (1941). New combinations in *Trachymene*. *J. Bot.* 79: 44-46.
- Davis, P. H. & Heywood, V. H. (1963). 'Principles of Angiosperm Taxonomy'. (Oliver & Boyd: London).
- De Candolle, A. P. (1829). Mémoire sur la famille des ombellifères. *Coll. Mém.* 5:1-84.
- Domin, K. (1908). Monographie der Gattung *Didiscus* (DC). *Sitzungsber. Konigl. Bohm. Ges. Wiss. Prag, Math.-Naturwiss. Cl.* 10:1-74.
- Eichler, H. (1965). 'Supplement to J. M. Black's Flora of South Australia'. (Government Printer: Adelaide). *Trachymene*, p.250.
- Haegi, L. (1982). Some observations on Gunn's Herbarium of Tasmanian Plants. *Austral. Syst. Bot. Soc. Newsletter* 32:8-9.
- Holmgren, P. K., Keuken, W. & Schofield, E. K. (1981). Index Herbariorum. *Regnum Veg.* 106: 1-452.
- Hooker, J. D. (1840). *Didiscus humilis*. Hook. *Icon. pl.* 4, t. 304.
- Hooker, J. D. (1856). 'Flora Tasmaniae' vol.1. (Reeve: London). *Didiscus humilis*, p.154-155.
- Norman, C. (1931). New *Trachymene* from Timor. *J. Bot.* 19:287-288.
- Willis, J.H. (1973). 'A Handbook to Plants in Victoria' vol.2. (Melbourne University Press: Melbourne). *Trachymene humilis*, p.484.